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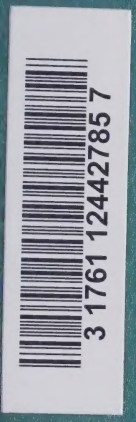

PHYSICAL STANDARDS

AND

INSTRUCTIONS FOR THE

MEDICAL EXAMINATION OF RECRUITS

FOR THE

CANADIAN EXPEDITIONARY FORCE

AND FOR THE

ACTIVE MILITIA OF CANADA

1918

OTTAWA
J. DE LABROQUERIE TACHÉ,
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
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PART I.

GENERAL INSTRUCTIONS FOR THE MEDICAL EXAMINATION OF RECRUITS.

The decision as to physical fitness rests entirely with the Medical Officers concerned in the examination of recruits. Recruits, after passing preliminary examination by the local medical officer, must be declared " physically fit " by a duly appointed Medical Board.

PRINCIPAL POINTS IN MEDICAL EXAMINATION OF RECRUITS.

In the inspection of recruits the principal points to be attended to are:—

That the recruit is sufficiently intelligent.
That his vision with either eye is up to the required standard.
That his hearing is good.
That his speech is without impediment.
That he has no glandular swellings.
That his chest is capacious and well formed and that his heart and lungs are sound.
That he is not ruptured in any degree or form.
That his limbs are well formed and fully developed.
That there is free and perfect motion of all joints.
That the feet and toes are well formed.
That he has no congenital malformation or defects.
That he does not bear traces of previous acute or chronic disease pointing to an impaired constitution.
That he is between the ages of 18 and 45 years.

General Grounds for Rejection.—Men presenting any of the following conditions will be rejected:—

Indication of tubercular disease; constitutional syphilis; bronchial or laryngeal disease; palpitation or other diseases of the heart; generally impaired constitution; under standard of vision; defects of voice or hearing; pronounced stammering; contraction or deformity of chest or joints; abnormal curvature of spine; defective intelligence; hernia; hæmorrhoids; marked varicose veins or varicocele; inveterate cutaneous disease; chronic ulcers; fistula; traces of corporal punishment; or any disease or physical defect calculated to unfit them for the duties of a soldier.

N.B.—Varicocele will be considered severe when the mass of veins is so great that it hangs down in front of the testicle when the candidate stands up or if the cord is so elongated that the testicle hangs abnormally low.

Mental Capacity.—Great care is to be taken in ascertaining the mental capacity of a recruit.

Correlation of height, weight, chest measurement and age.—The height, weight and chest measurement of a recruit should accord with each other, and with his age, agreeably to the table of standards laid down in the Recruiting Regulations. So far as concerns weight, this table is to be regarded as a guide only, and the medical officer is to exercise his own judgment as to the general fitness of the man under examination.

Determination of Age by Physical Development.—Should a recruit, on presenting himself for enlistment, bring no satisfactory proof of his age, the medical officer who examines him will, by comparing the height with the weight and general development, and also from the recruit's appearance, decide his age, which will be entered on the second page of the attestation "apparent age."

Position of recruit.—When not required to approach the recruit for special objects, the medical officer should always take his place at a distance of about six feet from him. The recruit should be placed so that the light may fall upon him.

Directions for general examination, and objects. — The recruit having, if possible, had a bath, or been washed, and being wholly undressed, the following should be the order in which the examination is carried out:—

He is measured under the standard.
He is weighed.
His chest measurement is taken.
His vision is tested.

If he satisfies requirements in these respects, and appears otherwise eligible, the general examination will be thus proceeded with:—

He is directed to walk up and down the room smartly two or three times, to hop across the room on the right foot, and back again on the left. (The hops should be short and upon the toes.)

He is halted, standing upright, with his arms extended above his head, while the medical officer walks slowly round him carefully inspecting the whole surface of his body.

An estimate is formed of the general physique, of his age, and whether he presents the appearance of having served before.

The objects to be observed and noted in this part of the examination are the following:—The general physical development; the formation and development of the limbs; the power of motion in joints, especially in the feet and hips; extreme flatness of the feet; formation of the toes; skin disease; varicose veins; cicatrices of ulcers; and any special marks from congenital or accidental causes, and tattoo marks. If no disabling defects are found, the second part of the examination will be proceeded with.

Examination of the trunk.—The trunk will be examined from below upwards. The recruit stands with his arms extended above his head, the backs of the hand being in contact. The following will be the order of inspection:—

The medical officer notes indication of venereal disease.
He examines the scrotum to ascertain if the testicles have descended and are normal, or if there be varicocele or other disease.
He inserts the point of his finger by invagination of the scrotum in the external abdominal ring on each side, and desires the recruit to cough two or three times, to ascertain if he be ruptured or liable to the condition.
He examines the abdominal walls and parietes of the chest.

Examination of the chest.—He desires the recruit to "take in a full breath" several times, while he watches the action and notes the capacity of the chest. Careful stethoscopic examination of lungs is made.

He examines the action of the heart, and notes its sounds.

The upper extremities.—The examination of the upper extremities will be made from below upwards. Time is saved by the medical officer himself acting as well as telling the recruit the movements he desires to be made.

The following are the directions:—

Stretch out your arms with the palms of your hands upwards.
Bend the fingers backwards and forwards.
Bend your thumbs across the palms of your hands.
Bend your fingers over your thumbs.
Bend your wrists backwards and forwards.
Bend the elbows.
Turn the backs of the hands upwards.
Swing your arms around at the shoulders.

Marks of vaccination.—The medical officer will examine the recruit for marks of vaccination.

This comprehends the inspection for loss or defects of the fingers, thumbs, wrists, elbows and shoulder joints; power of rotating the forearm, and vaccination. If not vaccinated, the circumstance should be stated on the medical history sheet.

The lower extremities and back.—The inspection of the lower extremities and back will be made from below upwards. The recruit first faces the medical officer, afterwards turns his back to him.

The following are the directions given facing:—

Stand on one foot, put the other forward.
Bend the ankle-joint and toes of each foot alternately backwards and forwards.
Kneel down on one knee.

Up again.
Down on the other knee.
Up again.
Down on both knees, and up from that position with a simultaneous spring of both legs.
Turn round. Separate the legs.
Touch the ground with the hands.

While the recruit performs these movement the medical officer will observe the action of the knee-joints, the conditions of the perinaeum and of the spinal column. This includes the inspection for defects of the toes, ankle and knee-joints; for haemorrhoids, prolapsus ani, fistula in perinaeo and spinal deformity.

The head and neck.—The examination of the head and neck will be made from above downwards. The medical officer will note the intelligence, character of voice and power of hearing of the recruit by his replies to the questions put to him. The following are the directions:—

Have you had any blows or cuts on the head?
Are you subject to fits of any kind?
He examines the scalp.
He examines the ears.
He examines the nostrils.
He examines the mouth, teeth, palate and fauces and then tells the recruit to say loudly "who comes there?"
He examines the neck.

This comprehends the inspection for injuries of the head, deafness, disease of the ears, defect of voice; polypus of nose; tubular ulceration; glandular enlargements and defects of the eyes and teeth.

Teeth.—An examining officer should not reject a recruit on account of the condition of his teeth, provided that the physical condition of the recruit is good in other respects. The condition of the mouth will receive attention from the C.A.D.C. subsequent to enlistment.

The following are the instructions for the measurement of recruits:—

Height.—The recruit will be placed against the standard with the feet together, and the weight thrown on the heels, and not on the toes or outside of the feet. He will stand erect, without rigidity, and with the heels, calves, buttocks and shoulders touching the standard; the chin will be depressed to bring the vertex of the head level under the horizontal bar and the height will be noted in parts of an inch to eighths.

Chest.—The recruit will be made to stand erect with his feet together, and to raise his arms over his head. The tape will be carefully adjusted round the chest with its posterior upper edge touching the inferior angles of the scapulae, and

its anterior lower edge, the upper part of the nipples. The arms will then be lowered to hang loosely by the side, and care will be taken that the shoulders are not thrown upwards or backwards so as to displace the tape. The recruit will then be directed to take a deep inspiration several times, and the maximum expansion of the chest will be carefully noted. It is often attempted to conceal the true minimum measurement, but it can be obtained by a little manipulation and by drawing off attention from the examination by a few questions.

The maximum expansion rarely exceeds the average minimum by more than 2 and 2½ inches.

The maximum and minimum will be recorded thus:—

36½	35
—	—
33½	33

In recording the measurements, fractions of less than half an inch should not be noted. The maximum is the standard measurement, and a recruit must also reach the range of chest expansion laid down in the table of physical equivalents.

I.—CLASSIFICATION OF MEN BY CATEGORIES. IN CANADA.

On and after 15th May, 1917, all Warrant Officers, N.C.O's. and men serving in Canada in the C.E.F., either recruits on enlistment or serving soldiers who have been returned to Canada, sick or wounded, will be classified in the categories shown below.

These categories will, on and after 15th May, 1917, be the only ones employed in describing the degrees of fitness for service of soldiers of the C.E.F.

CATEGORIES.

A. Fit for general service.	I. Men actually fit for despatch overseas, both as regards training in Canada and physical and mental qualifications.
	II. Recruits who should be fit for A.1. as soon as trained.
	III. Returned overseas C.E.F. who are not quite fit for A.1.
	IV. Men under 19 years who should be fit for A.1. when nineteen.

B. Fit for service abroad (but not for general service).	I. Not applicable. II. In C.A.M.C., C.A.D.C., Forestry, Pioneer, Labour and Construction Units, and Sections Skilled Railway Employees. III. Not applicable to men proceeding from Canada.
C. Fit for service in Canada only.	I. In special service companies. II. Special service companies and C.A.M.C. III. On sedentary work as clerks, storemen, batmen, orderlies, sanitary duties, etc.
D. Temporary unfit.	I. Not applicable. II. Not applicable. III. In any unit under or awaiting medical, including dental, treatment, who on completion, will rejoin their original category.
Awaiting discharge or reclassification.	E. Unfit for service in Categories A. B. or C.

The following standards are laid down as a guide in placing men in the various categories:—

A. Men already serving, recruits when trained or returned C.E.F. men when their physical condition warrants it. Able to march; see to shoot, hear well and absolutely well able to stand active service conditions.

B. Men already serving, recruits when trained, returned C.E.F. men when their physical condition warrants it. Free from serious organic defects, able to stand service conditions on the line of communication in France.

B. I. Able to march at least five miles, see to shoot with glasses and hear well.

B. II. Able to walk to and from work at least five miles, see and hear sufficiently for ordinary purposes and fulfilling conditions laid down in special instructions.

B. III. Only suitable for sedentary work.

C. Free from serious organic disease, able to stand service conditions in Canada.

C. I. Able to walk to and from work, a distance not exceeding five miles.

C. III. Only suitable for sedentary work.

1. A nominal roll of men on the strength of a unit will be made and kept up to date in the orderly room of every overseas unit and company or depot in which C.E.F. men are serving. The names will be arranged in the several categories.
2. As the categorization of men in Canada is to prevent unfit men proceeding overseas as well as to utilize available material to the best purpose, it is considered that categorization should be carried out by a Medical Board whether a man is to be raised or lowered in category.

If, however, in the opinion of the M.O. a man whom he considers unfit for service is unable to carry on with his duty pending being a man before a Medical Board, he will place him under medical treatment when he will temporarily come under Category D. III, as in the case of any soldier undergoing medical treatment.

3. Men in quarantine remain in their original categories and are not placed in D. III.
4. Medical Boards will carefully consider the raising and lowering of men in categories so that the best use may be made of men according to their physical and mental qualifications.
5. All men when proceeding overseas in Category A will be generally thus classified, the subdivision being only used in Canada.

SPECIAL INSTRUCTIONS RELATING TO PHYSICAL REQUIREMENTS.

FORESTRY.

Men will be accepted of lower category than "A", provided they are specially qualified and able to perform a full days work of 10 hours.

Defective vision and hearing will not disqualify, providing the man has no other defects; and hernia, capable of being retained by a truss, will not disqualify, if a man is otherwise fit and specially qualified.

In both these cases it will be necessary that the man have bush and mill experience, as

(1) General hand,
(2) Log makers,
(3) Axe men,
(4) Teamsters.

Men who are subject to rheumatism or accustomed to indoor work only are unsuitable to forestry operations.

Category "B" men will be acceptable providing their physical defects, including shortsightedness, loss of fingers or toes, flat feet and deafness, does not prevent them from doing a 10-hour day's work.

RAILWAY CONSTRUCTION BATTALION.

"Recruits for Railway Construction Battalions may be accepted of lower category than "A" provided they are specially qualified and able to perform a full day's work of 10 hours. They will be very carefully examined and the following observations, with special reference to this branch of the service, must be given attention."

Age.—Men over 43 years of age will not be accepted.

Hernia.—As previously noted in general instructions, men having hernia of any description will not be accepted.

Varicocele and Varicose veins.—Marked varicocele and varicose veins are grounds for rejection. Slight defects of this nature would not reject.

Flat feet.—A moderate degree of flat foot will not be sufficient cause for rejection. Recruits, however, must be able to march at least five miles.

Vision and Hearing.—The standards of vision and hearing, as laid down for Category A., are applicable. Recruits having lower standards of vision are not to be accepted.

Physical development.—It has been noted that even in Category A., some recruits for Railway Construction Battalions are not of sufficient physical development to fit them for the heavy labour involved in that branch of the service. It is therefore desirable that, in every case, the recruit be of such physical development that he may be fitted for heavy work.

Nervous conditions.—Recruits who may have, previously, served during the present war and have been lowered in Category on account of disability affecting the nervous system are not suitable for employment in Railway Construction Battalions and should not be passed as fit for that branch of the service even though they come up to standards required by Category B.

Nasal conditions.—Recruits suffering from severe nasal conditions must not be enlisted as it has been found that such recruits find it impossible to wear respirators.

"Generally, recruits not in Category "A" must be of the highest class, coming under the standard of Category "B" and special attention must be given to the points noted above. Recruits must be of as large frame and strong physique as possible."

II.—CLASSIFICATION OF MEN BY CATEGORIES, IN THE BRITISH ISLES.

1. In accordance with A.C.1 1606 of 1917, it has been decided, in order to simplify administration in the handling of personnel of the Canadian Overseas Military Forces, to abolish the distinction between categories B and C.

2. On and after Navember 3, 1917, all warrant officers, N.C.O's and men of the Canadian Forces in the British Isles will be classified in the categories shown below.

3. These categories will, on and after November 3, 1917, be the only ones employed in describing the degree of fitness for service of all soldiers.

4. Every soldier will be told the category he has been placed in, and any subsequent changes.

5. **Categories:—**

A. Fit for general service.

(I) Men actually fit for general service overseas in all respects, both as regards training, and physical and mental qualifications.

(II) Men who have not been overseas who should be fit for A (I) as soon as trained.

(III) Overseas casualties on discharge from hospital or command depots who should be fit for A (1) or A (II) as soon as they are 19 years of age.

Note.—Men under 19 years of age who are not physically or medically fit for category A will be classified in category B or E in the same way as men over 19 years of age, according to ther fitness.

For trumpeters, drummers, or pipers the minimum age limit will be 18.

B. Not fit for general service, but fit for service overseas or in the British Isles under the following conditions:—

(I) In Railway and Forestry Units and upon work of a similar character.

(II) In Forestry, Labour, C.A.S.C., C.A.M.C. (Base Units), Veterinary Units and on garrison or regimental outdoor employment.

(III) On sedentary work, in the British Isles only, as clerks, storemen, batement, cooks, orderlies, on sanitary duties, etc., or, if skilled tradesmen, at their trades.

D. Temporarily unfit for service in categories A or B, but likely to become fit within six months, and meanwhile either:—

(I) In Command Depots.

(II) In any unit under or awaiting medical or dental treatment who on completion of treatment will rejoin their own original category).

Note.—Category D (iii) is purely a temporary one, and a man in a higher category automatically comes

under D (iii) if under medical or dental treatment, and when his medical or dental treatment is finished he automatically rejoins his original category until transferred upwards by the M.O. i/c unit or Medical Board, or downwards by a Medical Board.

Men in Category D (i) must be sent to a Command Depot.

E. Unfit for service in categories A or B, and not likely to become fit within six months. Awaiting discharge.

6. The following standards are laid down as a guide in placing men in the various categories:—

Category A.—Able to march, see to shoot, hear well and stand active service conditions.

Category B.—Free from serious organic disease; and, in addition, if classified under—

Category B.—(i) Able to march at least five miles, see to shoot with glasses, and hear well.

Category B.—(ii) Able to walk to and from work a distance not exceeding five miles, see and hear sufficiently for ordinary purposes.

Category B.—(iii) Only suitable for sedentary work, or on such duties as storemen, batmen, cooks, orderlies, sanitary duties, etc. Also, if skilled tradesmen, fit to work at their trades.

7. On and after the above named date, all soldiers who are now categorized as C (i), C (ii) and C (iii) will automatically belong to the corresponding subdivision of Category B.

8. In all existing instructions wherein reference is made to categories C (i), C (ii) or C (iii), the instructions will be read as referring to B (i), B (ii) or B (iii) as the case may be, and any instructions which differentiate between categories B and C are cancelled, so far as they refer to Category C.

9. Instructions contained in Circular, A.G. 2-1-29, of 30-1-17, are amended in accordance with the foregoing.

(Authority: A.C. 1. 1606 of 1917. Reference A.G. Canadians, 2-1-29.)

III.—AGE.

Minimum 18. Maximum 45 years. Otherwise as for classes under the Military Service Act as specified by that Act.

IV.—STANDARDS FOR CHEST MEASUREMENTS.

At least 33 inches if under 30 years of age. If over 30 years of age at least 34 inches.

V.—HEIGHT.

Infantry	5′ 0″
Others	5′ 2″
Cyclists	5′ 4″
Artillery—	
1. Garrison, Heavy and Siege,—	
Gunners	5′ 7″
Drivers	5′ 4″
2. Horse and Field,—	
Gunners	5′ 6″
Drivers	5′ 2″
Minimum for:—	
C.M.A.C., C.A.D.C., Pioneers, Labour, Construction, Forestry, Skilled Railway Employees	4′ 11″

VI.—WEIGHT.

The following table showing correlation of height, weight and chest measurement is for guidance:

Variations from the standard given in the table are permissable when the applicant is **active, has firm muscles,** and is evidently vigorous and healthy.

Weight above the standard is not disqualifying, unless sufficient to constitute obesity.

Height. Inches.	Weight. Pounds.	Chest measurement. At expiration. (Inches.)	Mobility. (Inches.)
61	118	31	2
62	120	31	2
63	124	31	2
64	128	32	2
65	130	32	2
66	132	32½	2
67	134	33	2
68	141	33¼	2½
69	148	33½	2½
70	155	34	2½
71	162	34¼	2½
72	169	34¾	3
73	173	35¼	3
74	183	36¼	3
75	190	36¾	3¼
76	197	37¼	3½
77	204	37½	3¾
78	211	38¼	4

VII.—STANDARDS OF VISION.

In examining a recruit's vision he will be placed with his back to the light, and his visual acuteness will be tested by means of test types placed in ordinary daylight, at a distance

of twenty feet (six metres) from the recruit. The visual acuity of each eye in the case of approved recruits will be entered on the Medical History Sheet. If vision can be improved by glasses they should be ordered and worn.

Any morbid condition of the eyes or lids or either eye, liable to risk of aggravation or recurrence, will cause the rejection of the candidate.

To secure uniformity in placing figures on Medical History Sheet, the following will be the course of procedure:—

Direct applicant to read the test types from top of chart down as far as he can see, and record his vision for each eye, with the distance of 20 feet or 6 metres, as the numerator of a fraction, and the size of the type of the lowest line he can read correctly as the denominator.

If he reads the 20 feet type correctly, his vision is normal and should be recorded $\frac{20}{20}$ or $\frac{6}{6}$.

If he only reads the 60 feet type, he shows defective vision, and his vision should be recorded as $\frac{20}{60}$ or $\frac{6}{18}$.

It is requested that the degree of impairment of vision be shown either in feet or in metres, according to the following scale:—

Feet.	Metres.
$\frac{20}{20}$	$\frac{6}{6}$
$\frac{20}{30}$	$\frac{6}{9}$
$\frac{20}{40}$	$\frac{6}{12}$
$\frac{20}{60}$	$\frac{6}{18}$
$\frac{20}{80}$	$\frac{6}{24}$
$\frac{20}{120}$	$\frac{6}{36}$
$\frac{20}{200}$	$\frac{6}{60}$

STANDARD OF VISION FOR TRAINED OR PARTIALLY TRAINED SOLDIERS.

Category "A". — A soldier with 20/80 (6/24) or better vision in each eye shall be placed in Category "A" as fit for duty.

A soldier with 20/80 (6/24) or better vision in the right eye and 20/200 (6/60) in the left eye, who can be improved with glasses to see to shoot, shall be fit for duty.

Category "B".—20/80 (6/24) or better in the right eye, and less than 20/200 6(/60) in the left eye and can be improved with glasses shall be placed in Category "B". Exceptional cases such as some special training in Category "A".

20/200 (6/60) or less in the right eye and 20/80 (6/24) or better in the left eye and can be improved with glasses, shall be placed in Category "B".

Category "B".—20/60 (6/18) or better in either eye, the other eye being amblyopic or blind with traumatic cataract, scar tissue, or other condition, should blindness not be due to general constitutional disease, shall be place in "B" (II).

Category "C".—Less than 20/60 (6/18) in either eye but not less than 20/200 (6/60), which can be improved to useful vision, the other eye being blind may be placed in "C".

Soldiers who have lost one eye but with 20/60 (6/18) or better in the other eye if such loss is due to removal of the eye or serious injury should be placed in Category "C" for at least four months from convalescence and might then be transferred to Category "B" and in exceptional cases to Category "A" (i.e. when specially trained and the eye has been lost in service).

Soldiers with 3/60 (10/200) in each eye or 20/200 (6/60) in one eye with less than (3/60) 10/200 in other eye, which can be improved with glasses, should be placed in Category "C".

A soldier who, after recovery from severe inflammatory disease of the eyes, or from serious injuries of the eyes, when discharged from Hospital or Convalescent Hospital should be placed in Category "C" for one or two months before being transferred to Category "B" or "A".

Category "E".—If, however, the vision in the weaker eye is due to diseased condition that is likely to endanger the other better eye, he should be placed in Category "E" for discharge from the service.

It is, however, to be understood, that in all doubtful cases a definite opinion regarding such cases should be obtained from a specialist and that all men complaining of poor vision and who on testing are found to have poor vision shall be sent to a specialist and, if improvement can be secured, should be fitted with glasses.

All soldiers who require glasses for an improvement in vision should be provided with one pair of glasses and the prescription from which the glasses were prepared should be entered on his Medical History Sheet by the specialist.

ARTIFICIAL EYES.

All Officers, N.C.O's. and men who require artificial eyes should be provided with them before being classified in the various categories mentioned above.

VIII.—HEARING AND EAR CONDITIONS.

Category "A".—A soldier who can hear fifteen feet or better in each ear by ordinary voice and who has no organic disease of the ear shall be placed in Category "A".

A soldier who has hearing of twenty-one feet in either ear, but with little or no hearing in the other ear, but without active organic disease, shall be placed in Category "A".

No soldier with a discharge from his ear shall be placed in Category "A".

Category "B".—A soldier who has hearing of 15 feet in either ear, and little or no hearing in the other ear and has no active disease in either ear will be placed in Category "B" (II).

Category "C".—A soldier who has better hearing than twelve feet in each ear but has a discharge from either ear of a moderate degree or is subject to frequent recurring discharge from the ears of a moderate degree may be placed in Category "C".

Soldiers who show symptoms of chronic ear conditions such as hearing reduced to less than fifteen feet, with free discharging ear or ears, or shell concussion deafness, shall be placed in Category "C".

A soldier who has fully and recently recovered from a mastoid operation shall be placed in Category "C" for three months and then re-graded.

Category "E".—Cases that show repeated signs of recurring serious ear conditions, such as recurring mastoid, free formation of granulation tissue, indications of bone disease, or free, foul and offensive discharge from the ears, should be reported upon by a specialist with a view of being placed in Category "E" for discharge as permanently unfit.

IX.—NASAL AND TONSIL CONDITIONS.

Soldiers suffering from severe nasal obstruction should be sent to a specialist medical officer in ear, nose and

throat diseases, for report, and, if necessary, treatment before being sent overseas, as it is found that such cases find it difficult and in some cases impossible to wear respirators.

Enlarged tonsils which were present previous to enlistment should not be removed unless they show signs of chronic inflammation or recurring acute attacks of inflammation interfering with active military service. All cases other than above should be placed in Category "A".

Where the removal of chronically inflamed tonsils will fit a soldier for Category "A", operation should be performed.

PART III.

The following is for guidance of Medical Officers in classifying soldiers, as provided for in H.Q. 54-21-4-35 of 3/5/17.

Varicose veins.—Uncomplicated varicose veins should not prevent a soldier being classed in "B". These soldiers should be instructed by their M.O. as to the method of applying puttees so that the tape will be fastened around the ankle and not around the upper part of the leg. On the other hand, where there is evidence of phlebitis manifested by tenderness and thickening, or where there are phleboliths or there is any evidence of previous or beginning varicose ulcer, the case should not be graded higher than Category "C" (III).

If varicose ulcer is present, the soldier should be graded in "E" for discharge from the service.

Operation is not indicated in any of the above conditions.

Varicocele.—Ordinarily these cases should be classed in Category "A". Only in very exceptional cases is varicocele to be regarded as a disability.

Operation is not justifiable from a military point of view.

Inguinal hernia.—No man may be accepted for service abroad in classes "A" or "B", who is ruptured in any degree of form.

Femoral hernia.—Cases of femoral hernia occurring after enlistment should undergo operation or be classed in "E" for discharge from the service.

Ventral hernia (post-operative).—If a definite protrusion exists, these cases should not be classed higher than "C" (III).

In cases of hernia which have recently been operated upon, if the soldier states there is pain in the region of the operation, but no objective signs are present, the case should be classed in "D".

Where, in addition to pain, there is swelling or atrophy of the testicle, or other signs of pressure, the case should not be classed higher than "C" (III).

When a soldier is fitted with a truss, an entry of the fact is to be made in his Medical History Sheet in the space reserved for defects not sufficient to warrant rejection.

Injuries to knee joint.—If the internal lateral ligament is intact in its entirety as shown by absence of swelling and absence of lateral movement in full entension;

and if the anterior crucial ligament is intact as shown by absence of antero posterior mobility in semi-flexion;

and if the ligament of Winslow is intact as shown by absence of hyper extension, the case should be classed in "C".

Doubtful cases are to be referred to a specialist.

Fingers.—The loss of the index finger alone, or of the middle finger alone, or the loss of the fourth or fifth fingers, or both of these, uncomplicated by other disability in the hand, should be classed in "B".

Ulnar paralysis.—Complete ulnar paralysis, acquired on active service, should not be classed higher than "C".

Superior Radio ulnar joint.—If the arm cannot be supinated beyond the mid point between complete pronation and complete supination, the case should not be classed higher than "C" II.

Elbow.—If there is more than 30% limitation from full extension or full flexion, the case should be classed in "C".

Shoulder.—In the absence of pain substantiated by evidence of organic changes, and where the arm can be abducted beyond a right angle, the case should be classed in "C" I.

Jaw.—If there is any limitation of movement or if there is lack of adaptation of teeth, resulting in a poor " bite " the case should be classed in "C".

Injuries to head.—Fractures of the skull with loss of bone should not be classed higher than "C" (I).

Epilepsy.—If epilepsy is suspected, but the diagnosis has not been confirmed, the case should not be retained in hospital for observation longer than two weeks, but should be returned to duty in Category "C" (I), (II) or (III) for observation and later reclassification.

Shell shock.—In these cases a distinction must be made between—

(a) True shell shock, and
(b) Symptoms resulting from nervous exhaustion or loss of self control.

(A) True shell concussion is relatively uncommon and those affected are rarely fit to return to full duty. According to the severity, they should be classed in categories "C", "D" or "E".

(B) The psychic element is the outstanding feature in this type of case. The difficulty in classifying these cases is so great that they should be sent to a specialist at the earliest possible moment. These cases do not improve with ordinary convalescent treatment, and should be occupied by light duty as soon as possible.

The use of this term in the hearing of the soldier, or in documents which he may see, is forbidden.

Myalgia and Rheumatism.—Too many cases of so-called myalgia are retained in hospital for prolonged periods. In the absence of some definite focus of infection the majority of

these cases will be benefited by physical training. At the most no harm can result from trying physical training with these cases.

Similarly, chronic complaints in joints, which have no organic change, should be carefully considered, as usually these may be also advantageously trained.

A soldier whose age is over 35 and who has recurring attacks of sub-acute inflammation in the joints, or if there is evidence of previous swelling of the joints, not based on the man's unsupported statement, should be placed in class "E" for discharge from the service. This is particularly true in the case of the men with a tendency to obesity.

Too much importance should not be given to " Grating " of the joints if it is the only objective symptom. Cases not classified higher than "C".

Asthma.—A soldier suffering from typical recurring attacks of bronchial asthma, which required hospital treatment should be classed in "E", for discharge from the service. This is particularly indicated if there is a history of asthma during a previous sojourn in the British Isles.

Soldiers of middle age (about 40) inclined to stoutness, who suffer from recurring attacks of bronchial asthma, should usually be classed in "C".

Wounds of Chest.—In cases of penetrating wounds of the chest, the case should not be classed higher than "C".

Pulmonary tuberculosis.—Suspected cases of pulmonary tuberculosis should be carefully investigated in active treatment hospitals and a definite finding recorded. If the diagnosis is positive and confirmed by bacteriological examination the cases are to be classed in "D" and should be sent to a sanatorium.

Heart.—Systolic cardiac murmurs and doubtful enlargement may be ignored, if it has been found that the soldier is able to perform ordinary military duty without distress. Such cases should be classed "C".

Diagnosis of cardiac diseases by means of the stethoscope alone should be distrusted. Prolonged hospital treatment, involving as it does flabbiness of the cardiac muscle, explains much of the breathlessness and to a certain extent the murmurs so often recorded. (Cigarette smoking is probably a contributing factor.)

Disordered action of the Heart.—Cases of disordered action when there is good compensation may be placed in Category "C". When compensation is not good they are for Category "E". Discharged from the service.

The following is a memorandum, formulated for medical examiners, at the request of the War Office, by Sir James MacKenzie:—

The significance of abnormal signs in the recruit's heart.

It should be understood that the healthy heart in the young man can exhibit murmurs and variations in rate and rythm, which are perfectly physiological in origin and indicative neither of disease nor of impairment.

The functional efficiency of the heart.

Before examining the heart find out the functional efficiency by ascertaining how it responds to effort. This is shown by finding out the amount of exertion the candidate has been accustomed to take in the past in his work or play, and if he can undergo severe bodily exertion without distress.

Murmurs.

The physiological murmurs are always systolic in time and the situation of the greatest intensity may be at the apex, midsternum or base of the heart. If the response to the effort be normal and the heart normal, the murmur is negligible.

Youthful type of irregularity.

The most common irregularity is that which occurs in the healthy heart of the young. It is characterized by a lengthening and shortening between the beats. It will often be found to vary with the respiration, the beat increasing in rate during inspiration and decreasing during expiration.

It is frequent in perfectly normal hearts and is therefore of no importance.

Extra systoles.

In rare cases the pulse may be found intermitting more or less frequently. Over the heart, two short sounds rapidly following one on the other may be heard during the pause. If this is the only sign present, that is, if the functional efficiency of the heart be good, and the size be normal, then these extra systoles are of no significance.

Piles.—In men under 39 years of age, with piles, but otherwise physically fit, operation is indicated if the piles are sufficiently troublesome to incapacitate the soldier from service. No operation involving the removal of the whole pile area should be attempted.

If the disability existed prior to enlistment, the cases should be placed in Category "E" for discharge.

Teeth.—Soldiers should be considered dentally fit if they have sufficient teeth to masticate their food satisfactorily, but no soldier is to be placed in "A" (I) until all roots have been extracted. Cases requiring dental treatment to fit them for service are to be referred to the Dental Officer without delay.

Trench nephritis.—Cases of trench nephritis, on leaving convalescent home or hospital, even if apparently cured, should be classified not higher than "C" (III) and remain in this category for at least three months. At the end of that time they should be most carefully examined. A very considerable number of these cases will be in Category "E".

Syphilis.—If in the course of routine examination the Wasserman test is found to be positive, anti-syphilitic treatment should not be instituted in the absence of active symptoms of syphilis.

Cases infected with syphilis previous to enlistment, but who showed no symptoms of active syphilis at the time of enlistment and who subsequently developed nervous, ocular or other manifestations of the disease, may, if the soldier has been subjected to severe strain, be presumed to have had their condition aggravated by active service. In the absence of active symptoms they should be placed in Category "A".

Flat Foot.—Flat foot is a term applied to a group of disabilities which include all degrees of strain of the longitudinal arch of the foot. The height of the arch is no guide to diagnosis, as many Canadians, accustomed to the use of moccasins, have very low arches, with strong feet. On the other hand, youths, not "hardened" may have symptoms before their arches, which may be high ones, have begun to visibly break down. The question of flat feet affects not only the partially trained soldier in England but also affects the veteran overseas, due to the softening occurring as the result of trench warfare occasionally interspersed with route marches over bad roads.

Flat feet may be either:—

(1) The non-rigid type.
(2) The rigid type.

(1) The non-rigid type. This type may be

(a) Acute.

In these cases there is a quick onset and extreme pain so that the patient cannot put his foot on the ground, and any handling of the foot produces great pain. It may be due to strain, to injury, or to gonorrhoea or other infection. It always requires hospital treatment, but after such treatment many cases may be classed in "A"; or it may be

(b) Sub-acute flat foot.

This is the commonest type seen in soldiers. The foot is not too tender to be handled and the patient can stand on his feet and voluntarily invert them so that he stands on the outer side of his feet. The feet tend to become stiff under heavy marching and may be inclined to swell. On palpation, pain is complained of over the tubercle of the scaphoid and may also be present in the dorsum of the foot over the tendon of the tibialis posticus and under the tip of the external malleolus. No case of sub-acute flat foot should be regarded as permanently disabled until the effect of suitably constructed boots is seen. Boots for these cases should be so constructed as to deflect the body weight to the outer side of the foot. This relaxes the tibial tendons, the internal calcaneo scaphoid ligament and the other soft structures involved in maintaining the longitudinal arch.

The continuous wearing of such boots prevents these structures being stretched until they have recovered their normal tone.

Tip-toe exercises should be given as an additional treatment but they should always be performed in the altered boots in order to avoid strain.

Contrast bathing, in alternate hot and cold water, is also an advantage.

In most cases a fortnight's treatment in hospital should suffice to fit them for Category "C" or even "B" (II).

(2) Rigid flat foot.

In these cases the foot cannot be moulded into its normal shape. The rigidity may be due to adhesions, ligamentous contracture or osseous changes.

In all the rigid types of flat foot above mentioned the main distinction for military fitness depends on whether the patient can invert the foot or not.

Where inversion is possible, treatment and altered boots can permit of a grading as high as "B" (II).

The exception is the rare type of a rigid flat foot due to peroneal spasm, that is not fit for service, and if treatment is beneficial, may be classed as "C" (III).

Conditions that may complicate flat foot.

Flattenting of the anterior or transverse arch: Metatarsalgia or Morton's Disease. In these cases the heads of the 2nd, 3rd and 4th metatarsals drop and the transverse arch disappears. Corns under the heads of the matatarsals appear on the sole and the soft pad of adipose tissue which is usually present, markedly decreases, and the heads of the metatarsals are plainly felt beneath the skin. This condition may become acutely painful following marching but can be relieved by altered boots. This alteration consists of a transverse bar placed across the sole one inch posterior to the metatarsophalangeal joint. The bar should be one inch wide and one and a half inches high.

For description of the several types of altered boots, see Appendices "X", "Y" and "Z".

Hallux rigidus.—Where the metatarsophalangeal joint of the big toe is partly fixed but allows a slight degree of hyperextension and there is increased mobility of the interphalangeal joint, the boot with the bar such as that described above under " Flat foot " will relieve the strain and permit of the case being classed in "B" (II).

Where no movement is permitted in the metatarsophalangeal joint, the toe being fixed in an extended or flexed position, the use of the sole bar on the boot will avoid strain and allow of a greater freedom in walking. These cases should be classed in "C".

Hallux valgus.—The only disability produced by this condition is caused by the infected bursa on the inner side of the joint. If pressure on this cannot be relieved by the use of suitable boots, the soldier is unfit for marching and cannot be classed higher than "B" (II). Operation appears to be of no military value.

Hammer toe.—If accompanied by corn that debars the use of the military boot, should have an arthroderis of the flexed joint and be fit for Category "B", if otherwise fit, in six weeks.

Claw foot.—Two chief types of severity are to be found in the soldiers:—

One shows definite contraction of the plantar fascia and the great toe is dorsiflexed at the metatarsophalangeal joint and the tendon of the extensor proprius hallucis stands out prominently, the tendo achilles is shortened. The other toes are deformed. If the Medical Officer's finger be placed under the ball of the great toe, he easily lifts it and the toe automatically straightens out. The patient may not complain of disability but there may be a history of pain and fatigue after long marches. The pain may be severe on pressure under the balls of the toes and corns may be appearing in the same region. A bar under the sole of the boot will relieve the pain and a half inch should be removed from the heel of the boot to stretch the tendo achilles. If this is done it may be possible to class the case as high as "C" I.

(2) This type is an exceedingly and increasing severe condition of type one. The deformity cannot be corrected by pressure upon the sole, all the toes are deformed by the marked dorsiflexion of the metatarsophalangeal joints and fully flexed at the joints distal to these. Corns and callosities appear and the heads of the metatarsals seem to press through the plantar skin. A varied deformity may appear at the mid-tarsal joint and even trophic changes may occur in the toes and pain and disability increase with each degree of severity. All the cases should be classed in "B" for discharge.

Trench foot.—The question of degrees of severity of so-called " Trench foot " is to be judged by the appearance or absence of trophic changes in the nails, which manifest themselves by the formation of transverse ridges and a tendency to split.

SUGGESTIONS REGARDING THE TREATMENT OF FLAT FOOT CASES.

1. To obviate as much as possible unsuitable cases of flat foot being sent to hospital. The Medical Officer of battalions in training centres should be instructed in the differential diagnosis and treatment of these and allied deformities.

2. Routine and frequent examination of feet should be carried out by the Medical Officers of training battalions immediately after route marches, not only for the purpose of ensuring cleanliness but also with a view to detecting and correcting early foot trouble.

APPENDIX "X".

Crook long and inside flapper patch on sole with its centre beneath the ball of the great toe, 3½ inches long by 2 inches broad, ⅛ inch deep at its inner side in the centre and gradually fading to nothing at each periphery.

Heel.—Addition in length on inner side ¾ inch on outer side. ¼ inch ⅛ deeper along inner border. Suitable for all cases of flat foot with falling of the longitudinal arch where inversion of the foot is possible.

APPENDIX "Y".

Bar under sole placed 1 inch behind the metatarsal heads, 1 inch broad and ½ inch high. Suitable for cases of fallen transverse arch and metatarsalgias and hallux rigidus.

APPENDIX "Z".

A combination of crooked long heel and sole bar crooked on the inner side. Heel as before. Bar as before but ⅛ inch deeper on the inner side of the foot. This alteration throws the foot into inversion and relieves pressure on the metatarsophalangeal joints. Suitable for cases of flat foot of both longitudinal and transverse arches and falling arch with hallux rigidus.

AMENDMENTS TO BOOKLET.

"Physical Standards and Instructions for the Medical Examination of Recruits for the Canadian Expeditionary Force and for the Active Militia of Canada, 1918."

Goitre.—Recruits having goitre in any degree or form are not to be categorized higher than "C."

Hemorrhoids.—In the "Physical Standards and Instructions for the Medical Examination of Recruits, 1918," it is noted that a recruit having this disability prior to enlistment must be placed in Category "E." The presence of a small, uncomplicated external pile is not to be considered as sufficient to warrant rejection.

Chronic Gleet.—Recruits suffering from chronic gleet are not to be rejected for that cause, if uncomplicated by stricture, prostatitis, or other organic changes.

Syphilis.—It would appear that in some cases Medical Officers place recruits having a history of an old infection V.D.S. and showing a positive Wasserman, but no other evidence of the disease, in Category "E." This is incorrect. The instructions laid down in the pamphlet referred to above (page 22) should be adhered to. A positive Wasserman only is not sufficient ground for rejection.

Tachycardia.—Recruits having tachycardia, unless complicated by other disqualifying causes, are not to be immediately categorized but should be placed under close supervision with a view to detecting possible fraud.

(End.)

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